

# Materials Monthly

Making materials matter

August 2002

## The Machines that Ate Acton

A special issue of *Materials Monthly* on a technology tour of ANU for NSWk



▲▲ Nanda Dasgupta (bottom of photo) describes the beam line of the Heavy Ion Facility (see Particle Accelerator).

As part of National Science Week, 2002, ANU's Centre for Science and Engineering of Materials staged and coordinated a technology tour through some of ANU's 'big research machines'. The tour was titled 'the machines that ate Acton', and was run with the assistance of the National Institute of Physical Sciences, the National Institute of Engineering and Information Sciences, RSPHySE, RSES, ANUSF and FEIT.

The idea was to take small groups of VIPs through research facilities belonging to several institutions/departments on campus (a cross-department activity). VIPs in this instance refers to senior school science students, teachers and representatives from institutions that ANU would like to impress.

While tours of individual machines had been arranged in the past, this was the first time a series of machines from different departments were placed on one tour in a

coordinated fashion. Part of the reason for running such an event was to explore the advantages and problems in running such a cross department activity.

▲▲ Boyd Blackwell (facing camera) explains the Heliac (machine behind Boyd) to visitors.



Should events of this style be attempted again in the future? This issue of *Materials Monthly (MM)* attempts to help answer this question by reviewing 'the machines that ate Acton', who was involved, what was achieved and what can be learnt from running such activities.

Five machines were selected for the tour:

- ▷ the Big Dish - innovative ways of harvesting solar energy (FEIT)
- ▷ the Particle Accelerator - towering particle generator (RSPHySE)
- ▷ the H1 Heliac - plasma in a magnetic bottle (RSPHySE)
- ▷ the Super Computer - enormous computer grunt (ANUSF)
- ▷ the SHRIMP - ancient geological dating (RSES)

Visitors were given notes prepared by CSEM and reproduced on the CSEM website (see <http://www.anu.edu.au/CSEM>)

◀◀ Students from Year 12 Physics, Daramalan College, are taken over the Big Dish.

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# The Machines that Ate Acton

## Tour schedule

Each tour ran for 2 hours. Each machine was given 20 minutes with 5 minutes in between each visit to get to the next machine. Each tour began at the Big Dish then proceeded to the Particle Accelerator, the Heliac, the Super Computer and finished at the SHRIMP. A total of 15 people could be accommodated on any one tour (because of the space available in and around the machines).

Each tour had a single tour guide who stayed with the group ensuring they stayed (roughly) on schedule and people didn't wander. Each machine had an interpreter who discussed the machines and its significance as the group went around.

Tours were run over 3 days: Tuesday, 20 August; Wednesday 21st and Thursday 22nd. It was initially intended that 6 tours a day be run beginning at 9am, 10am, 11am, 1pm, 2pm and 3pm. That's a total of 18 tours over 3 days. There were three tour guides (David Salt (CSEM), Tim Thompson (RSPHySE) and Heather Slater (NIEIS)) and it was initially intended that each person control 2 tours a day (6 tours over 3 days).

## Tour promotion

It was hoped that senior school students and teachers would take up the majority of the available places. All science teachers throughout Canberra were sent information in late July (via the Science Educators Association of ACT). This was followed up on by a notice sent out by Val Leitch the officer working with 'Researching with Scientists' program, and Chris Denny sent a notice to teachers involved with the Physics Mentor scheme.

CSEM, NIPS and NIEIS all promoted the event to their ANU members; and it was also promoted by ANU Public Affairs in their 'what's on at ANU' spot.

The event was promoted in the Australian Science Festival activities book which was distributed far and wide around Canberra. The event also received press coverage during National Science Week with articles in the Sunday Telegraph and the Canberra Times.

## Tour attendance

Of the 18 possible tours, bookings were taken for 11 sessions. 7 tours were not run.

6 of the tours were for senior high school science and physics students. These were largely full. 4 of these groups were from year 11 and 12, Daramalan College. These 4 groups were also given an additional tour over the Department of Physics.

Of the remaining 5 tours, visitors were a mixture of science teachers, education officers with CSIRO, the Australian Academy of Science, science communication students, the Australian Science Teachers Association, ANU staff and few members from the general public. A couple of these tours only had a few people on them, but most were largely full.

Stuart Midgley shows an older, heavier, water-cooled computer board to students being shown



▲▲ Aidan Byrne demonstrates a Van de Graaff generator by way of explaining the Particle Accelerator to year 12 Physics students.

## Tour feedback

The feedback we got back was uniformly praising and positive. People enjoyed the visit and frequently commented they always wondered what that big tower (the particle accelerator) was for and now they knew. Most people were impressed with the power and purpose of the technology they were seeing; and many said they never realised this type of work was going on at ANU.

A few people actually travelled down to Canberra just for this tour (after reading about it in the Sunday Telegraph). Afterwards they said it was worth it!

Some of the students looked a bit dazed by the end of the tour (for the Daramalan students this was understandable because combined with the Dept of Physics talks their tour lasted 3 hours).

Many people commented on the difficulty of finding anything on the ANU campus and that parking was difficult.

One teacher observed that preparation notes for the classroom priming students about the science and technology they were seeing would have deepened the experience.

(for a discussion on how the event might be improved and a list of the people involved, see page 3).



# The Machines that Ate Acton

Was it worth it?

In terms of results, 'the machines that ate Acton' is a mixed bag. It took a lot of effort and coordination to set up (consider the number of people involved) but we didn't fill the tours we were running.

The quality of the visitors we did get was of a high order (senior students, teachers, educators and communicators) but it would have been good to have filled the tours. Promotion, therefore, could have been improved.

Having said that, it's not just any promotion that's needed. We could have taken out ads, for example, and filled all the tours with members from the general public but this wouldn't have provided much extra reward for the effort. The target was senior school students and teachers not the general public. To have increased the 'hit' here we needed more lead time (2 months instead of one), more information being sent out to schools and repeated notifications.

If this type of event were to be run again it would be good to try and run a special 'teachers tour' 6 weeks earlier and spruque for business there. It takes time for a teacher to organise an excursion. We could also try getting into school newsletters and working with careers advisers in order to specifically invite students considering science as a career.

A cross-department tour sounds nice but requires enormous coordination. If cross-department tours are organised in future this should be kept in mind (ie, the possible returns need to be balanced against the resources required to organise them).

Other comments:

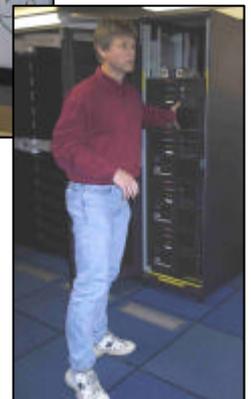
- ▷ 5 machines was probably 1 machine too much. Visitors are bombarded with so much info that I suspect most were a little overwhelmed by about ¾ through.
- ▷ 20 minutes was a good time for one machine. It gave time to set the scene and show people around without letting the time drag.
- ▷ 15 people as a maximum limit for this type of tour was a good number. 10 people worked better (but limits the total number that can join in).
- ▷ 6 tours a day is possibly too many for tour guides (and interpreters). We only ran 11 of the 18 tours but these were exhausting. Maybe run 4-5 tours a day over more days (although this has problems in terms of distracting the research machines and staff from research for longer).
- ▷ teaching props are essential and every machine put out something that helped (Big Dish: small paraboloidal collector; Particle Accelerator: Van de Graaf Generator; Helic: plasma demonstration; Supercomputer: old-style computer microcircuit + different storage devices; SHRIMP: 4.5 billion year old meteorite and hour glass comparison).
- ▷ tour guides are an important component – one face that stays the same throughout the tour (also, each tour runs at a slightly different pace which could be problematic for a self guiding tour).
- ▷ possibly a better starting point for the tours could have been chosen. We chose the Big Dish because it's very big

and very public because it's outside. On the other hand, it's tucked away behind RSPHySE in an area of the uni that's not well known. Also, it's outside with little shelter from the elements. We had perfect weather but that was just good luck.

- ▷ if future tours are organised it would be nice to send anyone booking in a map of where to go (we sent instructions but a map would have been better).
- ▷ we need to make sure that visitors are warned there is no wheel chair access.

One of the most interesting aspects of the tour was not the machines but the researchers that operate the machines. Their enthusiasm and insight were inspiring.

Seen here are John Howard (top), Greg Lane (centre), Damien Ellwood (below left) and David Singleton (below right).



## Acknowledgements

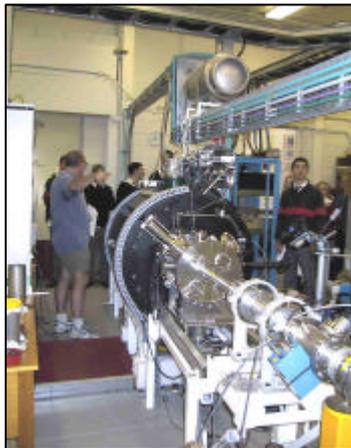
A lot of people assisted with the staging of this event. I would like to acknowledge and thank the following people for their support and efforts in making 'the Machines that ate Acton' an event to be proud of: Boyd Blackwell (Plasma Research), Aidan Byrne (Nuclear Physics), Nanda Dasgupta (Nuclear Physics), Chris Denny (NIPS), Damien Ellwood (DoP), Bob Gingold (ANUSF), Peter Holden (RSES), Trevor Ireland (RSES), Judy Jenkinson (ANUSF), Greg Lane (Nuclear Physics), Keith Lovegrove (FEIT), David McClelland (DoP), Sylvana Ransley (CSEM), Heather Slater (NIEIS), Zbigniew Stachurski (CSEM), Tim Thompson (RSPHySE), Ian Williams (RSES) and the many interpreters who gave their time to show why their particular research machine is so special.

If anyone would like more information on 'the machines that ate Acton' please contact me. I'd also be interested in hearing any additional comments anyone might have.

**David Salt**

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# *The Machines that Ate Acton*



End of the beamline, Heavy Ion Facility



Parabolic solar action, the Big Dish



4.5 billion year old meteorite! the SHRIMP says so

## *CSEM*

ANU Centre for Science & Engineering of Materials

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Department of Forestry  
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Department of Physics

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Research School of Physical Sciences & Engineering

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Materials Workshops

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